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ABSTRACT

This document describes 2 + 2, a form of articulation between high school and community college programs that involves 2 years of secondary and 2 years of postsecondary vocational training, which has become a major goal of vocational education policymakers in the 1980s. This report mentions a variety of strategies that have been discussed and/or implemented to achieve some level of articulation--among which are "early admissions," "articulated curriculum," and "credit by examination." This document provides an overview of 2 + 2 programs, including a definition that differentiates 2 + 2 from other articulation strategies. Two sections address the articulation process (how to make it work) and articulation issues (barriers that hinder success). Another major component of this document is a chart listing 2 + 2 programs identified through a literature search. This document is meant to promote and encourage articulation and the envisioning of a broader and better vocational program in Hawaii. A 32-item reference is found at the end of the document. (NLL)

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State Board for Vocational Education

Office of the State Director for Vocational Education

Planning for Articulation: 2+2 Vocational Education Programs

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Planning for Articulation: 2+2 Vocational Education Programs

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April, 1989

Preface

2 + 2, a form of articulation between high school and community college programs, has become a major goal of vocational education policymakers in the 80's. In response, a variety of strategies have been discussed and/or implemented to achieve some level of articulation. "Early admissions," "articulated curriculum," "credit by examination" are only a few of the buzzwords to be found in an articulation agreement.

There are many interpretations of articulation and what constitutes a 2 + 2 program. While some of these interpretations are rather simple responses, others are more complex and their successful implementation involves far more than a few changes in the curriculum.

This document provides an overview of 2 + 2 programs, including a definition which differentiates 2 + 2 from other articulation strategies. Two sections address the articulation process (how to make it work) and articulation issues (barriers which hinder success). Another major component of this document is a chart listing 2 + 2 programs identified through a literature search.

Mostly, this document, prepared by the Office of the State Director for Vocational Education, is meant to promote and encourage articulation and the visioning of a broader and better vocational program in Hawaii.

Table of Contents

Preface ii

Introduction 1

Definition 3

Program Articulation Retrospective 4

2 + 2 Models Today 6

Chart: Correlation of 2 + 2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs 9

Articulation Process 32

Articulation Issues 38

Summary 43

References 45

Introduction

The fifth period bell at Aloha High School has just rung and Mary Rodrigues and Andy Lee are rushing to their business education laboratory. Both students are well on their way to earning advanced placement credit at the nearby community college. The business education program, which was the first to implement an articulation or 2 + 2 agreement between the high school and community college, has evolved into a competency-based, individualized instruction vocational program. Andy, who wants to be a medical secretary, has completed a core curriculum and is now working through the modules which are teaching him the skills he needs to reach his goal. When he enters the community college next year, he will continue with his medical secretary program--at the point where he left off at the high school. Andy will be so advanced that he will be learning techniques that would not otherwise be taught at the postsecondary level because of lack of time. However, since Andy has completed the core competencies and is well into the medical secretary program at the secondary level, he will be able to learn some very sophisticated skills while he is obtaining his Associate of Science degree at the community college. Andy's business teacher has already warned her community college counterpart to start preparing some advanced modules in the medical secretary program. This is not the first time the two business teachers have contacted each other about program development. Both were involved in formulating the original articulation agreement and both made a commitment at that time to not only provide advanced placement but to provide a 4-year vocational curriculum which would

produce graduates with advanced skills. Now they meet regularly, sometimes with their joint advisory committee, to revise competencies in their curricula and to discuss new program options.

Mary Rodrigues' interest is in marketing and today she will start a Learning Activity Package (LAP) on advertising. Three years ago, a LAP on advertising did not exist at Aloha High School. Everyone in the business curriculum took virtually the same courses and therefore learned the same business education competencies. While that was not altogether bad, the system did not allow for exceptional interests or abilities. The increasingly sophisticated 2 + 2 program stimulated change in the curriculum at both the high school and community college.

The business community has been so impressed with the calibre of students being prepared at the two institutions that donations of equipment for specialized vocations are now commonplace. Where specialized training had once been the domain of local businesses, there are now options for both students and employers at the two schools. Students are no longer mastering minimum competencies, they are trying to master the maximum number of competencies they are capable of accomplishing during the constraints of the school year. Thus, the curriculum is flexible and students are rewarded for all that they can do. In addition, requests from the business community can be accommodated and that has resulted in improved relationships.

The teachers, of course, are the catalysts that make this program work. But a successful 2 + 2 program, one that encourages not only advanced placement but also advanced skills, requires a solid infrastructure and administrative support.

Articulation agreements between secondary and postsecondary schools, crude beginnings to 2 + 2 programs, have been in existence for many years. Teachers with years of experience will describe the various articulation or program coordination agreements with which they have been involved—all of which seem to end up as nicely printed documents which never changed anything. What is the difference between an articulation agreement and a 2 + 2 program? What are the elements of successful 2 + 2 programs? What are the difficulties in maintaining them?

This document attempts to answer these questions. In addition, a chart of known 2 + 2 programs across the nation is presented so that the reader may see the variety of curriculum areas involved and perhaps determine which curriculum areas might be suitable for such agreements in Hawaii.

Definition

In practice, articulation covers a wide range of relationships between different institutions. A high school that has worked out a vocational curriculum so that it carefully prepares a student for entry into a specific program in a particular postsecondary school might be considered by some as an example of articulation or a 2 + 2 program. Others might contend that articulation has not been achieved until the secondary and postsecondary institutions have formal agreements specifying how students can receive postsecondary credit for work accomplished as part of the secondary curriculum. And some might claim that the program is not 2 + 2 unless there is not only advanced placement (the granting of postsecondary credit while in

high school) but also the provision of advanced skills (competencies which would not be taught in a traditional program because of lack of time). What each of these efforts has in common is the characteristic to eliminate, as much as possible, unnecessary duplication of training across the secondary and postsecondary school levels.

However, according to the literature (Long, et al. 1986; White, 1986; Galloway, 1985; Hull, 1985), 2 + 2 is the articulation of secondary and postsecondary (2-year) vocational education curricula in grades 11-14 to create a strong 4-year vocational curriculum that produces graduates with advanced skills. Unfortunately, as stated above, many educators use 2 + 2 indiscriminately to refer to many types of coordination efforts, mostly those programs which are limited to advanced placement. While advanced placement is a positive aspect of coordination, it should not be mistaken for an example of a true 2 + 2 program. Advanced placement agreements are, however, a good foundation on which to build a 2 + 2 program.

Program Articulation Retrospective

Articulation between secondary and postsecondary programs is not a new idea. Whitlock (1978) traced such efforts back as far as the 1920s, when southern California implemented a 6-4-4 system and established Pasadena Junior College (later Pasadena City College) for grades 11-14. In 1929, the National Education Association dedicated its Seventh Yearbook entirely to a discussion of articulation at all levels (Opachinch and Linksz, 1974). The President's Commission on Higher Education in 1947 "underscored the need to provide easier transition between high school and college" (ibid., p. 1).

In the 1950s, articulation of academic credit became a national focus with the Advanced Placement (AP) Program and the College Level Examination Program (CLEP). AP aims at enabling high school students to take college-level foundation courses while in high school and to receive advanced standing once the students matriculate to a postsecondary institution. The CLEP examinations allow for the testing out of foundation courses at the postsecondary level.

Though early focus was on academic programs, vocational programs took up the articulation challenge in the late 1960s. For example, New York met with some success in its early efforts to articulate certain business and technical programs between high schools and 2-year colleges (Brick, 1967). Similarly, the Oregon State Board of Education (1968) developed an approach and guide to assist its high school districts and community colleges in articulating their occupational programs.

By the mid-1970s, quite a few secondary and postsecondary institutions had articulated activities underway for their vocational programs. The National Advisory Council on Vocational Education (1976) surveyed State Advisory Councils and found "planned articulation between secondary and postsecondary levels of instruction in slightly less than 40 percent of the states responding to the NACVE survey" (p. vi).

A 1986 study by The National Center for Research in Vocational Education at The Ohio State University found quite a few articulation efforts underway between high school and 2-year postsecondary vocational education (Long, et al.). Although their study did not attempt a comprehensive search for articulation sites, queries gleaned program data from 72 nominated sites in 29 States.

2+2 Models Today

Long, et al. (1986) claim that there are few 2 + 2 programs in existence which integrate curricula for grades 11-14, avoid duplication of learning, and provide competency-based exit points after grades 12, 13, and 14 in career ladder fashion. The 2 + 2 programs which do exist seem to focus strongly on developing advanced skills for high-technology occupations. As Bottoms (1984) explains:

> Advanced-level technical and skilled workers need a broad base of knowledge that cannot be developed in two years at either the secondary or postsecondary level. A four-year program is needed to develop their ability to learn in the specific occupational field, and to link this education closely with planned experiences in the employment setting (pp. 8-9).

Starting in grade 11, vocational 2 + 2 programs arrange the study of mathematics, science, communications, technology, and specific technical skills so as to avoid duplication and reach a "master technician" level of competence in a step-by-step progression of coordinated curricula by the end of grade 14.

To achieve this ambitious outcome, vocational 2 + 2 programs must blend the resources of both the secondary and postsecondary institutions. This may involve creating a jointly operated training facility; writing new, comprehensive competency-based curricula for all 4 years; building strong, close working relationships among participating administrators and faculty; sharing instructors; maintaining exceptionally close relationships with local employers; investing substantial planning time and funding; and creating and managing complex, formal operational funding structures.

Perhaps the premier example of a true vocational 2 + 2 program is in Bakersfield, California, among Bakersfield College, nine local high schools within the Kern High School District, and the Kern County Regional Occupational Program (Long, et al. 1986). The articulation responds to the expressed needs of local employers for better trained technician-level employees, specifically to work in the highly mechanized agriculture industry that is central to the county's economy. Bakersfield's 2 + 2 program offers a career ladder agriculture training program in the 11-14 grade levels. The program culminates in a 2-year associate degree whose strong general education emphasis should facilitate potential transfer to a 4-year college or university.

Aside from the Bakersfield 2 + 2 example, there is little information on articulation programs which are truly 2 + 2. Reviewing the literature simply does not provide enough information about articulated programs to determine if they are true 2 + 2 programs (offering both advanced placement and advanced skills). Articulation agreements abound but the degree of their sophistication is difficult, if not impossible, to judge. This limitation should be kept in mind when reviewing the following chart of 2 + 2 programs which were identified through a literature search.

The chart which follows has some other limitations which should be explained. First, knowing that a school district is involved in a 2 + 2 agreement is not an indication of the number of schools, courses, students, and teachers involved. Thus, a count of 2 + 2 programs in a particular vocational area is not possible with this chart. For example, agriculture may be only listed once with the

information that the agreement includes 2 community colleges and 3 school districts. There could be far more individual programs articulated in this one agreement than in a vocational area which is listed in several places on the chart. Even if the number of schools in a district is provided, there is still no indication of the numbers (courses, students, etc.) involved. Therefore, it would not be prudent to count the number of times a particular vocational area is mentioned and assume that it may be an "easier" program to articulate because it appears the most often. It may, however, be an indication that there is a lot of activity in that curriculum area.

Second, the cross referencing to Hawaii Department of Education vocational program areas is judgmental. Without knowing the content of the specific program described in the literature search, it is not always possible to accurately cross index the program to a Hawaii program. Also, some of the more specialized programs found in the literature are cross referenced under a Hawaii vocational program area even though the specialized program is not presently an option.

The chart does provide an overview of the variety of programs which are included in 2 + 2 agreements. It appears that as long as instructors can work together and are provided administrative support, a 2 + 2 agreement is possible in any vocational area.

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
ARIZONA Maricopa County Community College and 17 districts										
All areas:	•	•	•	•	•	•	•	•	•	
agreements made by individual faculty members with administrative approval										
ARKANSAS 24 postsecondary voc-tech schools, 18 secondary schools, and some community colleges										
Machine Shop								•		
Electronics						•				
Welding								•		
Diesel Mechanics										•
Nursing										•
Data Processing	•									
Business Education	•									
Computer Information Systems										•
Drafting									•	
Carpentry							•			
CALIFORNIA Kern Community College District (Bakersfield Community College) and Kern High School District										
Agriculture	•									

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Los Rios Community College District (American River College) and Sacramento Unified School District, San Juan School District, Grant Union District, and Washington Unified School District										
Electronics						•				
Mechanics								•		
Office Administration		•								
Computer Science										•
Cerritos Community College District and 9 secondary schools										
Automotive								•		
Drafting and Design									•	
Electronics						•				
Manufacturing										•
District, San Juan School District, Grant Union District, and Washington Unified School District, Compton Community College and 5 secondary schools										
Auto Body Repair								•		
Welding								•		

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Sierra Joint Community College District and 17 secondary schools										
Automotive Technology								•		
Early Childhood Education				•						
Electronics						•				
Saddleback Community College and 5 secondary schools										
Office Information Systems		•								
Mt. San Jacinto Community College and 13 secondary schools										
Auto Mechanics								•		
Child Care				•						
Nursing										
Secretarial/Clerical		•								•
Palomar Community College and 3 secondary schools										
Drafting/ CAD									•	
Welding								•		
El Camino Community College and 1 school										
Electronics						•				

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS										OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL					
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Diablo Valley College and 5 secondary schools										
Accounting		•								
Child Care				•						
Engineering/CAD										•
Office Administration		•								
Retail			•							
Rio Hondo Community College and 13 secondary schools										
Business		•	•							
Health										
Auto Body										•
Automotive								•		
Drafting								•		
Electronics									•	
Machine Tool						•				
Welding										•
Manufacturing Technology								•		
Sweetwater Community College and 9 secondary schools										•
Automotive								•		
Office Occupations		•								

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
State Center Community College District (Fresno and Kings River Colleges) and 12 secondary schools										
Accounting		•								
Business Occupations		•	•							
Office Procedures		•								
Drafting									•	
Health										•
South County Community College District (Chabot and Chabot Valley Colleges) and 7 high school districts										
Drafting									•	
Hartnell Community College District and 7 secondary schools										
Auto Collision Repair								•		
Auto Technology								•		
Business Computer Science										•
Drafting									•	

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
North Orange Community College District and North Orange District										
Auto Collision								•		
Auto Service								•		
Business Management										•
Child Development				•						
Commercial Art/Computer Design									•	
Drafting/CAD									•	
Fashion										•
Hospitality/Hotel Management										•
Marine Diving										•
Medical Records Technology										•
Graphics									•	
Radiology Technology										•
Foothill-DeAnza Community College District and 5 secondary schools										
Auto Technology								•		
Communications/TV Technology						•				
Drafting/CAD									•	
Machine Tool										•
Office Technology		•								
Accounting		•								

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
San Mateo Community College and 4 secondary schools										
Electronics						•				
Chaffey College and 12 secondary schools										
Child Development				•						
Computer Information Systems										•
Drafting									•	
Electronics						•				
Office Technology		•								
Allan Hancock Community College and 6 secondary schools										
Auto Technology								•		
Business		•	•							
Drafting									•	
Welding								•		
FLORIDA										
Brevard Community College and 10 high schools										
Drafting									•	
Secretarial Science		•								
Electronics						•				
Auto Mechanics								•		
Data Processing		•								

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
ILLINOIS William Rainey Harper Community College and High School District 211, High School District 214, and Community Consolidated School District 220										
Clerk/Typist		•								
Secretarial		•								
Word/Information Processor		•								
Horticulture	•									
Heating, Air Conditioning and Refrigeration										•
Finance and Credit										•
Computer Graphics										•
Medical Office Assistant										•
Nursing										•
Nursing Assistant										•
Cosmetology										•
Automotive Technology									•	
Auto Body Technology									•	
Fashion Merchandising and Design										•
Graphic Communication									•	
Human Services										•
Restaurant Hospitality Management										•
Electronics						•				

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2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
MARYLAND 17 community colleges and high school districts										
Data Processing		•								
Drafting									•	
Electronics						•				
Heating/Air Conditioning										•
Industrial Electricity						•				
Business		•	•							
Nursing										•
Parks Management										•
Secretarial Science		•								
Media Technology										•
Automotive Technology								•		
Construction							•			
Computer Technology										•
MICHIGAN Washtenaw Community College and 11 public school districts										
Broad range of technologies						•	•	•	•	

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2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Montcalm Community College Montcalm Area Career Center,Greenville High School, Alma High School										
Automotive								•		
Machine Trades										•
Electronics						•				
Welding								•		
Schoolcraft University College and District										
Nursing										•
Welding								•		
Child Care				•						
Accounting		•								
Electronics						•				
Culinary Arts					•					
Machine Trades										•
Office Occupations		•								
Mechanical Drafting									•	
Automotive Mechanics								•		
Construction Technology							•			
Distributive Education			•							

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2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS										OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL					
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Delta Community College and District										
Data Processing		•								
Drafting									•	
Office Education		•								
Building Trades							•			
Auto								•		
Nursing										•
Dental										•
Machine Drawing										•
Architectural Drawing									•	
Wayne Community College and District										
Data Processing		•								
Child Care				•						
Drafting									•	
Culinary Arts					•					
Office Education		•								
Welding								•		
Auto Mechanics								•		
Electronics						•				
Auto Body								•		
Accounting		•								
Nursing										•
Dental Machine Tools										•

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2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Macomb Community College and District										
Data Processing		•								
Food Service					•					
Drafting									•	
Electronics						•				
Office Education		•								
Welding								•		
Construction Trades							•			
Auto and Service								•		
Accounting		•								
Distributive Education			•							
Graphic Arts									•	
Commercial Art										•
Climate Control										•
Kent Community College and District										
Drafting									•	
Food Service					•					
Office Education		•								
Welding								•		
Auto								•		
Child Care				•						
Nursing										•
Electronics						•				
Machine Tools										•

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2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
St. Clair Community College and District										
Office Education		•								
Auto								•		
Nursing										•
Food Service					•					
Accounting		•								
Alpena Community College and District										
Office Education		•								
Auto								•		
Genesee Community College and District										
Office Education		•								
Building Trades							•			
Auto								•		
Welding								•		
Food Service					•					

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
MINNESOTA Hennepin Technical Center and 13 high school districts										
Food Service Occupations					•					
Building Trades							•			
Business Occupations		•	•							
Machine Trades Occupations										•
Health Occupations										•
Transportation										•
Graphic Communications									•	
Technical Occupations						•	•	•	•	
Natural Resources and Environmental Occupations										•
NEVADA Clark County Community College and School District										
Automotive								•		
Business		•	•							
Drafting									•	
Electronics						•				
Graphic Arts									•	
Health Occupations										•
Resort Occupations										•
Refrigeration										•

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
NEW JERSEY Mercer County Community College and Mercer County Area Voc-Tech Schools										
Secretarial		•								
Nursing										•
Medical Assisting										•
Commercial Art										•
OHIO Sinclair Community College, Dayton Public Schools, Montgomery County Voc. School, and Upper Valley Joint Voc. School										
All areas	•	•	•	•	•	•	•	•	•	
OKLAHOMA Oklahoma City Community College, Oklahoma City Public Schools, and F. Tuttle Voc-Tech Center										
Core curriculum in technology										•
Medical Equipment Technician										•
Industrial Plant Technician										•
Computer-Aided Design Technician										•
Instrument Control Technician										•
Automated Manufacturing Technician										•
Computer Technician										•
Electronics/Telecommunication Technician										•

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
OREGON										
Portland Community College, Portland Public School District, Banks School District, Beaverton School District, Forest Grove, Gaston, Hillsboro, Lake Oswego, Newberg, St. Helens, Scappoose, Sherwood, Tigard, and Vernonia Districts										
Drafting Technology									•	
Office Administration		•								
Business Administration										•
Agriculture Technology	•									
Auto Body Technology								•		
Automotive Service Technology								•		
Diesel Technology										•
Early Childhood Education				•						
Electronic Engineering Technology						•				
Graphic Reproduction									•	
Machine Technology										•
Marketing Medical Technology										•
Welding								•		

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS										OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL					
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Mt. Hood Community College and 7 school districts (9 high schools)										
Automotive								•		
Building Construction							•			
Child Care				•						
Electronics						•				
Welding								•		
Metals, Manufacturing										•
Computer Aided Design										•
Marketing			•							
Food Service					•					
Graphics									•	
Horticulture	•									
Hospitality/Tourism										•
Office Occupations		•								
Accounting		•								
Chemetka Community College and 6 school districts										
Manufacturing Fundamentals										•
Lathe Machining										•
Milling Machining										•
Office Occupations		•								
Accounting		•								
Electronics						•				

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Rogue Community College and 3 districts (9 high schools)										
Graphic Arts									•	
Health Occupations										•
Auto Mechanics									•	
Linn-Benton Community College and 6 neighboring county secondary schools										
Agricultural Sciences	•									
Drafting Technology									•	
Office Technology		•								
Welding								•		
Food Service/Culinary Arts					•					
Electronics						•				
Tempqua Community College and 14 high schools										
Office Education		•								
Electronics						•				
Child Care				•						
Industrial Mechanics										•
Lane Community College and 10 school districts										
Business and Office		•								

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Southwestern Oregon Community College and Coos and Curry County districts										
Metals								•		
Industrial Mechanics								•		
Drafting										•
Blue Mountain Community College, Treasure Valley Community College and 10 high schools										
Office Systems		•								
PENNSYLVANIA Williamsport Area Community College and 20 secondary school systems										
Agriculture	•									
Auto Body Repair										
Automotive Mechanics								•		
Aviation Maintenance								•		
Construction										•
Carpentry							•			
Cosmetology							•			
Drafting										•
Electrical Occupations									•	
Forestry						•				
Health Occupations										•
										•

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS										OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL					
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Horticulture	•									
Machine Shop										•
Masonry							•			
Quantity Foods Production and Service										•
Small Engine Repair								•		
Welding								•		
SOUTH CAROLINA Greenville Technical College and Greenville County School District (includes 14 high schools and 4 secondary-level vocational centers)										
Business and Office Education										
• Typewriting										
• Shorthand										
• Accounting										
• Office Procedures										
• Business English		•								
Automotive Mechanics								•		
Carpentry							•			
Drafting									•	
Food Service					•					
Welding								•		

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
TEXAS Texas State Technical Institute System and 500+ school districts 75 vo-tech programs El Paso Community College and El Paso School District										
Electronics						•				
Drafting									•	
Accounting		•								
Secretarial Science		•								
UTAH Washington County School District and Dixie Community College										
30 occupational areas										
VIRGINIA Peninsula Voc-Tech Center, T. Nelson Community College, and all public secondary schools										
Electronics/Telecommunication Technicians						•				
Word Processing		•								
Office Technology		•								
Drafting									•	
Metal Machining										•

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS										OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL					
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics		Vocational Programs Not Currently Offered by Hawaii DOE
Northern Virginia Community College and Northern Virginia School District											
Nursing											•
Electronics						•					
Office Systems Technology		•									
Automotive Technology								•			
T. Nelson Community College, New Horizons Technical Center and 5 school districts											
Master Technicians											
• Biomedics											•
• Automated Manufacturing											•
• Computer Maintenance											•
• Electromechanics											•
• Electronics						•					
• Environmental Equipment Repair											•
• Fiber Optics											•
• Fluid Power											•
• Instrumentation Control											•
• Lasers											•
• Robotics											•
• Systems Analysis											•
• Telecommunications											•

Correlation of 2+2 Programs Nationwide with Hawaii Department of Education Vocational Education Programs

2+2 PROGRAMS BY STATE	HAWAII DEPARTMENT OF EDUCATION VOCATIONAL EDUCATION PROGRAMS									OTHER
	AGRICULTURE	BUSINESS		HOME ECONOMICS		INDUSTRIAL/TECHNICAL				
		Office	Marketing	Child Care	Food Services	Electrical/ Electronics	Construction/ Civil Technology	Mechanical Occupations (Metals,Auto)	Technical Graphics	Vocational Programs Not Currently Offered by Hawaii DOE
Central Virginia Community College and 6 school districts										
Engineering design technicians						•				
Lord Fairfax Community College and 3 school districts										
Computer Information Systems Specialists										•
WASHINGTON Bellevue Community College, Shoreline Community College, 7 high school districts, Snow-Isle Vocational Skills Center, and Lake Washington Voc-Tech Institute										
Office Professions		•								
Engineering Technology										•
Drafting									•	
Graphics									•	
Open entry at all institutes at levels of competence	•	•	•	•	•	•	•	•	•	
Wisconsin Wankesha County Technical Institute and 9 local school districts										
9 vocational programs										

Articulation Process

Articulating 2 + 2 programs between schools is a lengthy process that begins at the point when responsible individuals begin thinking about it and ends...never. Or at least it does not end until participating schools agree to cease cooperating in articulation efforts. Articulation should be thought of as an ongoing process involving planning, implementation, and maintenance. Too often once the planning is completed and some sort of agreement has been reached, implementation and maintenance are ignored. 2 + 2, or even its simplified counterpart articulation, will not thrive unless a number of articulation principles are enforced. In a study by The National Center for Research in Vocational Education, Long, et al. (1986), determined that the following ten principles were essential to successful articulation.

1. Provide leadership and commitment from the top.

Strong leadership and commitment at the top administrative level are required in all secondary and postsecondary schools in the articulated arrangememt. In fact, the joint elements of leadership and commitment were emphasized as being the most crucial to articulation success by the colleges and schools studied in the Long, et al. report (1986). More importantly, this commitment and leadership must be a long-term process with continual effort.

2. Involve faculty early.

The involvement of faculty in developing articulation procedures and materials is required for acceptance and success (ibid.). For faculty members to support and carry out the articulation process, it is important that they have a part in shaping and deciding that

process. Also it is helpful to include as many faculty members as possible in articulation planning and curriculum development meetings.

When a number of high schools articulate with a community college, the instructors in a vocational specialty must meet to resolve any differences in their course content, competencies, and standards. To assist secondary and postsecondary instructors to get to know, understand, and respect each other; regular planning, development, and review meetings need to be held. Also, holding these meetings in various school locations enables both entities to see each other's facilities, increases understanding, eliminates feelings of superiority or inferiority, and reduces turfism.

Long, et al. (1986) discovered that an important aspect which affected the attitude of teachers was whether or not they received released time to do the planning, development, and coordination required. Although most teachers were willing to give some extra, unpaid time, Long, et al. found that this became too burdensome as the process continued. If teachers are to have major responsibility in curriculum development or revision, a provision for released time is particularly important.

3. Build relationships based on respect and trust.

Knowledge of, respect for, and trust between key persons in each organization and their counterparts is essential in the articulated arrangement. Building trust is often a long process that develops through working together toward common goals. Often secondary and postsecondary instructors and administrators hold misconceptions about one another. Professional respect is achieved only when people talk together about their goals and accomplishments and share their

aspirations for the future. In advanced placement situations where high school teachers certify the competencies of their graduates, skepticism is soon ereased when the community college teachers see that the students coming to them really have acquired the competencies specified.

4. Ensure that all parties benefit.

The benefits of articulation to each school and college involved must be clearly perceived. Articulation requires extra effort, time, and resources. Unless both parties see advantages in participating and clearly understand how they will benefit, they will not be willing to give what is required for meaningful articulation. In fact, the benefits must exceed the costs.

Long, et al. (1986) found that all of the participants in The National Center study agreed that articulation serves students best by saving them time and money because they do not have to duplicate courses. Also, schools and colleges see articulation as a way to improve and strengthen their curricula. When secondary and postsecondary teachers work together to review, upgrade, update, and coordinate their curricula, not only does the curricula improve, but the teachers themselves learn from the process. Such improvements and benefits attract more and better students to the programs.

Faculty and administrators at both levels see articulation as a good recruiting and public relations tool. Most articulated programs are capable of producing graduates with higher level competencies in response to employers' demands.

5. Put agreements in writing.

A formal, written articulation agreement that is renewed annually should be prepared and signed by the chief executive officers of the

schools and colleges. Practitioners advise that an agreement be specific enough to establish the system and flexible enough to keep it running.

An important feature in articulation agreements, according to the Long, et al. (1986) study, is the provision for annual review, revision, and renewal. Most articulation sites in this study had agreements at two levels: one at the institutional level signed by the chief executive officers and a second agreement at the program level signed by the department heads and/or other administrators. Both agreements are annually reviewed, revised, and renewed.

6. Communicate, communicate, communicate.

Communication between parties involved in the articulation process should be open, frequent, and clear. Not only is communication needed between schools and colleges, it is also needed at various levels between counterparts in those organizations. Key groups--program faculty, administrators, and so forth--need to meet regularly. Equally important is communication within each institution, from administrators to faculty, and vice versa. In the Long, et al. (1986) study, the missing link mentioned at several sites was effective communication about the opportunities and benefits of the articulated programs for school counselors, students, parents, and employers. Unless these four groups are well informed about the articulated programs, the best system in the world cannot be effective.

7. Start small and build.

Long, et al. (1986, p. 19) advises: "Select a vocational program where conditions and attitudes favor articulation. Then build upon

that success in developing other articulated programs." When embarking upon articulation, it is important to begin in a department or vocational area where faculty members have demonstrated openness to change and can perceive the benefits of articulation to their students and to their program. Often there is a natural need because of changing environmental factors in a certain vocational field and articulation is identified as one of the solutions to problems arising because of these changes. Those departments which have good and active relationships with their counterparts at the other educational level also represent potential starting points.

It is important not to undertake too much in the beginning. By concentrating administrative effort and resources toward articulation in one or two program areas, the job can be done well. Also, much is learned from that first experience. Once articulation is successfully established, the procedures can be applied to other vocational areas. The success and demonstrated benefits of the early established articulated programs will help convince other departments that they too should articulate.

8. Make someone responsible.

The experiences at the articulation sites in the Long, et al. (1986) study revealed that to make headway with articulation, someone must be assigned the responsibility for articulation and given the time and resources to bring it about. The degree of support given to articulation shows the priority it has within the institution. The arrangement that shows maximum commitment and cooperation is the joint employment of a single articulation coordinator funded by both levels

of education. Such an arrangement is particularly important when extensive curriculum revision and development must be undertaken.

If joint employment is not feasible, then someone should be assigned the articulation responsibility within each educational entity. Again, time and resources need to be made available. If a grant provides funds for articulation, a commitment should be made to the articulation coordinator that the position will be continued after the grant expires. Such commitment is necessary to have continuity of leadership in articulation and to keep the process moving.

9. Build competency-based curricula.

Building articulated educational experiences is easier when learning activities are built around the competencies to be developed. According to the 1986 study by Long, et al., the articulation sites that function with competency-based education are enthusiastic about it and feel that it helped teachers and curriculum developers as they matched up secondary and postsecondary educational experiences. Competency-based education helps students see what skills they have developed and where they should begin their postsecondary program. It provides a structure for examining courses, and instructors have a common approach and educational language when planning articulation.

10. Focus on goals, not turf.

Concentrating on areas of agreement helps overcome protective turfism. Developing interinstitutional relationships is a complex process in which participants must be willing to work for the common good instead of to their own advantage. When institutions are competing for students, credit hours, or resources, it is often difficult to develop a new, cooperative structure linking or

integrating parts of their organizations. To get the process started and cooperative relationships established, it is helpful for parties to begin with issues they can agree upon and build from there. If difficulties are encountered and turfism becomes evident, it is important to keep in view overriding common goals such as improved or expanded educational programs, better use of resources, and smoothing students' passage from one educational level to the next.

Articulation Issues

Anyone working toward articulation goals should be aware that some factors, conditions, and situations facilitate the process of articulation and that others hinder it. These are special concerns to which those involved in an articulation effort must pay careful attention in planning and operating a program. The following issues have been identified by the Center for Occupational Research and Development (Hull, 1985) and The National Center for Research in Vocational Education (Long, et al., 1986).

1. Political/Legal structures

Historically, secondary and postsecondary institutions have been isolated from each other and structured independently. Articulation challenges this tradition by posing new institutional roles, relationships, and missions. In the process, institutional and departmental power bases may feel threatened and become self-protective. Also, the traditional separatism of teacher training programs and governance systems is not supportive of articulation, and state funding entitlement and reporting requirements may create problems.

2. Policy barriers

Policy barriers are closely related to the barrier presented by the political/legal structure. Policy barriers are based upon the lack of standardized policy among institutions and upon the lack of policies formulated specifically to support articulation efforts. Without uniform policies for admitting students, granting credit for course work, determining course requirements, and scheduling; articulation is not likely to occur. Articulation is also hampered by the lack of formal articulation agreements between schools and by the lack of advisory boards formed specifically to facilitate articulation efforts. Many of the policy questions must be answered at the postsecondary level and concern such "rules" as prerequisites, wait lists, and English and mathematics placement tests scores correlation with vocational program admittance. Another policy barrier is related to union contracts, particularly at the postsecondary level, which determine work-load formulas. In an individualized, competency-based program, this is a major question which needs resolving as lab time does not usually count as much as lecture time. Financial aid rules may also need restructuring to accommodate students who have earned advanced placement and are therefore not taking the required number of credits for eligibility.

3. Resources

Resource barriers include limited budgets that must be stretched to pay for planning activities, training in articulation methods, and increased staff work loads. Barriers are also created by shortages of qualified teachers and limitations of space and equipment. Students may themselves be perceived as barriers to articulation if institutions regard them as limited resources to be competed over.

4. Communications

Communication barriers result from too little interaction and uncertain relationships among faculty, programs, and institutions; from too little information and misinformation about articulation; from conflicting ideas on concepts and terminologies. In short, the lack of professional exchange among educators in secondary and postsecondary institutions creates a communication barrier that has a negative effect upon articulation.

5. Attitudinal barriers

Attitudinal barriers may be the greatest of the inhibitors to articulation activities. Negative attitudes toward articulation are fostered by administrators who are not convinced that articulation is important; by institutional provincialism, and excessive concern for autonomy; by a belief that educational orientations of respective institutions are incompatible; by general inertia and lack of commitment to change.

6. Faculty reluctance

A major reason for faculty resistance is tradition. Instructors, comfortable with "the way we have always done it," can become locked into practices that hinder successful articulation. Some instructors feel threatened by change, especially when it happens quickly or is mandated from the top. Others may resent the inconveniences the changes cause.

7. Lack of institutionalization

Many program administrators report that their articulation effort started to lose steam at some point during planning or implementation.

Asked why, program administrators claimed that some efforts involved so many participants and grew so complex that communications faltered, protocol grew cumbersome, and the overall system became increasingly unresponsive. Oftentimes, this barrier is due to the lack of an administrator solely responsible for 2 + 2 programs.

8. Curricula articulation

Many program planners face problems with incompatible secondary-postsecondary curricula when designing articulation programs. The problem may be that one level is competency based and the other is not or that, especially at the postsecondary level, fundamentals are buried in existing courses rather than being clustered together in introductory courses. Without this clustering of fundamentals, students cannot bypass courses for advanced credit. This situation can also result in students (or advisors) not knowing which course they should register for at the postsecondary level. On the other hand, if instructors are not willing to prepare advanced curricula or students are not willing to learn advanced skills, there is a problem with early completion of a course. What happens to a student who has mastered all of the "minimum" competencies?

9. Grading structure coordination

Inconsistencies between the secondary and postsecondary grading structures can create headaches for articulation efforts. This is particularly troublesome where one level uses competency-based curricula and the other does not. A related issue is a student who receives a grade of "incomplete." When this occurs, what course does the student register for and how are credits awarded? This problem occurs in individualized, competency-based programs. In fact, in such a program a formula for allocation of credits needs to be determined.

10. Counseling services

Counselors are a crucial link in articulation because they, more than any other group, promote articulation opportunities to high school students. Too often, however, secondary counselors are already overwhelmed by having too many duties and too many students to advise per counselor. Sometimes counselors are given insufficient information on articulation opportunities to do an effective job of promoting them.

Summary

Secondary-postsecondary program articulation has been around for decades, but today it is entering a strong new developmental cycle, driven by a renewed sense of service to students and community, the demand for educational excellence, the spread of new technology into most technical occupations, and the need to get the most out of shrinking finances at a time of declining enrollment. While there is no single recipe to formulating articulation agreements, the common focus is to smooth students' passage from one educational level to the next.

2 + 2 provides additional challenges in that it goes beyond providing advanced placement to offering advanced training. 2 + 2 should be recognized as a series of processes, transfer being one of them. The total activity is also an attitude. It is people driven. No matter how beautiful the paper agreement, success is strongly dependent on the understanding and support of the administration, faculty, and staff who deal directly with students at both the sending and receiving institutions.

Those who plan and operate 2 + 2 efforts unanimously recommend it as a valuable, viable system whose benefits greatly outweigh its costs of money and staff time because:

- high school and community college curriculums are connected
- program content is re-examined and duplication is eliminated
- academic studies are integrated with vocational studies

- students plan their courses of study with an understanding of performance requirements for all levels
- students are encouraged to stay in school; incentives and rewards motivate many to excel
- students are given additional opportunities to enroll in non-traditional career preparation programs
- students completing high school 2 + 2 programs save tuition costs and complete postsecondary work sooner or participate in advanced training opportunities.

References

Articulated Programs Between High Schools and Community Colleges in Maryland. Annapolis, MD: Maryland State Board for Community Colleges, December, 1984.

Articulation in Virginia: Coordination of Secondary/Postsecondary Education. Richmond, VA: Virginia Department of Education, 1988.

Ballard, J. B. Articulation of Secondary and Postsecondary Programs. Little Rock: Arkansas Department of Education, 1986.

Bottoms, G. "Now is the Moment of Opportunity." VocEd 59, no. 7, (October, 1984):8-9.

Bushnell, D. S. Cooperation in Vocational Education. Washington, D.C.: American Association of Community and Junior Colleges and the American Vocational Association, 1978.

Developing Excellence in Vocational Technical Education. Portland, OR: Portland Area Vocational Technical Education Consortium, April, 1988.

Elements of Reform: A Discussion Paper. Nevada Department of Education. July, 1987.

Galloway, J. R. and Washburn, J. "A Joint Secondary-Postsecondary Enterprise." VocEd 60, no. 1, (January/February, 1985):12, 14.

Henderson, W. E. Policies and Procedures Guide for Articulation of Occupational Education Programs Between the School District of Greenville County and Greenville Technical College. Greenville, SC: South Carolina Appalachian Council of Governments and the School District of Greenville County, June, 1983.

Holmes, G. A. 21 Joint Articulation Career-Vocational Education Projects, Executive Summary 1986-1987. Sacramento: California State Department of Education, 1987.

Hull, D. Two-Plus-Two Articulation: A Guidebook for Educational Planning. Waco, Texas: Center for Occupational Research and Development, September 1985.

Kintzer, F. C. Emerging Patterns of Statewide Articulation Transfer Agreements. Santa Monica, CA: Pine Publications, 1976.

Long, J. P.; Warmbrod, C. P.; Faddis, C. R.; and Lerner, M. J. 2 + 2: Secondary-Postsecondary Curriculum Coordination. Columbus, Ohio: The National Center for Research in Vocational Education, The Ohio State University, 1986.

McKinnerney, B. R.; Thomas, R.; and Todd, H. Student Articulation Between Secondary and Post-Secondary Education: A Suggested Guide. College Station, TX: Texas A&M University, June, 1974.

Michigan State University Curriculum Resource Team. A CBE Task Level Articulation Process Guide. East Lansing, MI: Michigan State University, n.d.

Mt. Hood Regional Cooperative Consortium UPDATE. Mt. Hood, OR: Mt. Hood Community College, Spring 1988.

National Advisory Council on Vocational Education. Articulation. A Study by the National Advisory Council on Vocational Education. Washington, D.C.: NACVE, 1976.

Opachinch, C. A. and Linksz, J. J. A Handbook for Articulating High School and Community College Career programs. Catonsville, MD: Catonsville Community College, 1974. (ED 104455)

Oregon State Board of Education. An Approach to the Articulation and Coordination of Occupational Education Programs. Salem, OR: Oregon State Board of Education, 1968. (ED 031570)

Parnell, D. The Neglected Majority. Washington, D.C.: Community College Press, 1985.

Regional Cooperation for Vocational Education in Linn, Benton, and Lincoln Counties. Albany, OR: Linn-Benton School District, n.d.

Regional Vocational Education Opportunities. Jackson and Josephine Counties, OR: Secondary School Districts of Jackson and Josephine Counties in cooperation with Rogue Community College and Jackson Education Service District, n.d.

Secondary/Postsecondary Program to Prepare Master Technicians. Richmond, VA: Virginia Department of Education and Virginia Community College System, 1986.

2 + 2 Tech Prep Guide. Hillsboro, OR: Hillsboro Union High School, 1987.

Ughetto, R. and Hoerner, J. L. Articulation Models and Systems: High School to Community Colleges and Community Colleges to Four Year Institutions. Richmond, VA: Virginia State Department of Community Colleges. October, 1987.

Van Allen, G. H. Two-Plus-Two Programming: A Focus on Student Achievement. Community College Review, no. 2, (Fall, 1988).

Vinarskai, E. Oregon's Regional Cooperative Vocational-Technical Programs. Salem, OR: Oregon Department of Education, 1987.

Warmbrod, C. and Long, J. "College Bound or Bust." Community, Technical, and Junior College Journal 57, no. 2, (1986): 28-31.

Weidenthal, B. and Golden S. 2 + 2 Equals Success. VocEd 59, no. 1 August/September, 1988):38-39.

White, B. 2 + 2: Secondary-Postsecondary Articulation. Trends & Issues. Honolulu: State Board for Vocational Education, Fall, 1986.

Whitlock, B. W. Don't Hold Them Back. A Critique and Guide to New High School-College Articulation Models. New York: College Entrance Examination Board, 1978. (ED 157414)

Woelfer, Carlyle. "Vocational Education Curiculum Articulation in North Carolina." Community College Review 8, no. 1 (1980): 38-44.

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